



*Supplement of*

**Delayed responses of an Arctic ecosystem to an extreme summer: impacts on net ecosystem exchange and vegetation functioning**

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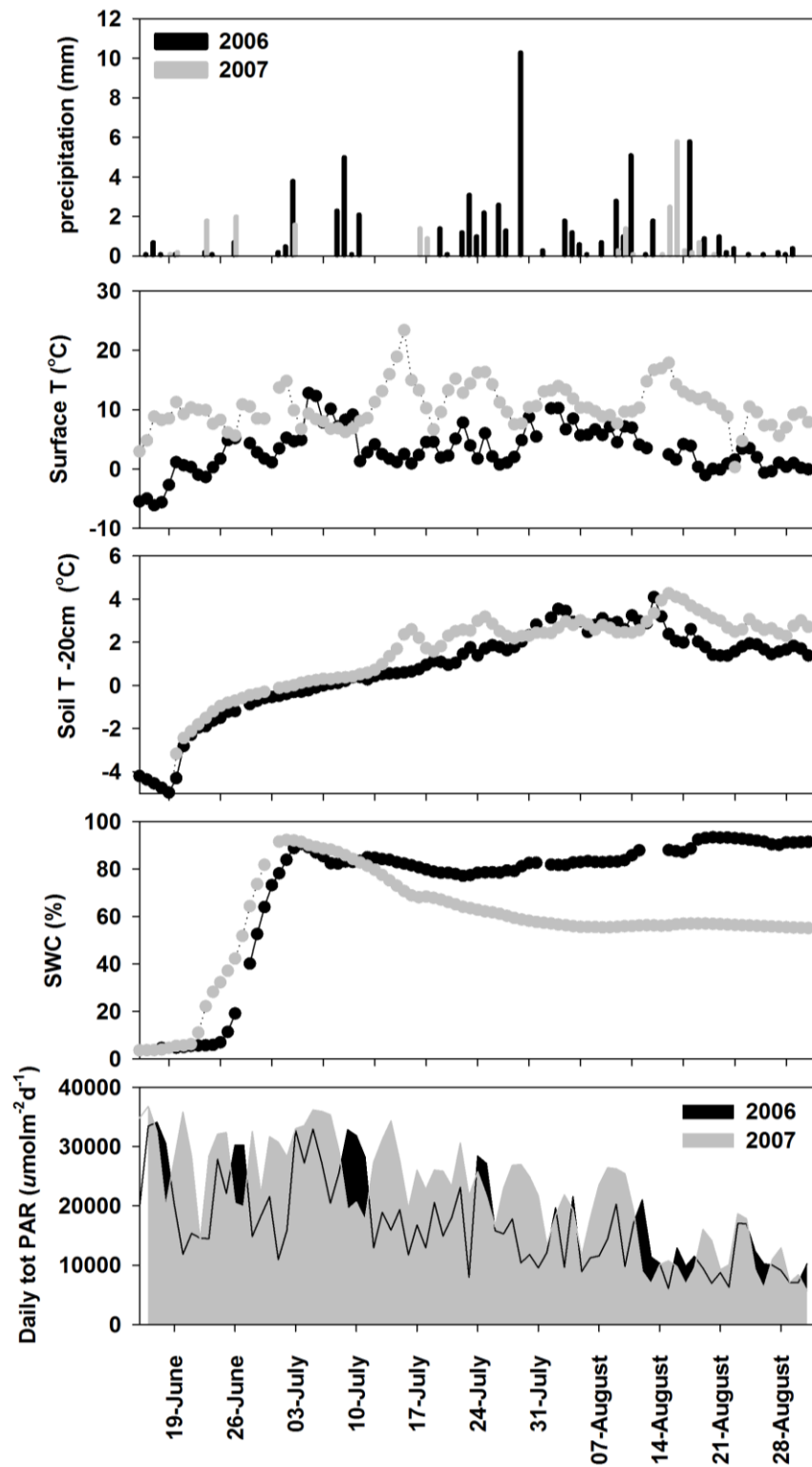


Fig. S1. Environmental conditions (daily total precipitation, surface temperature, soil temperature at -20 cm, soil water content (SWC) in the 0-10 cm layer, and photosynthetically active radiation (PAR)), at the study site during summer 2006 and 2007.

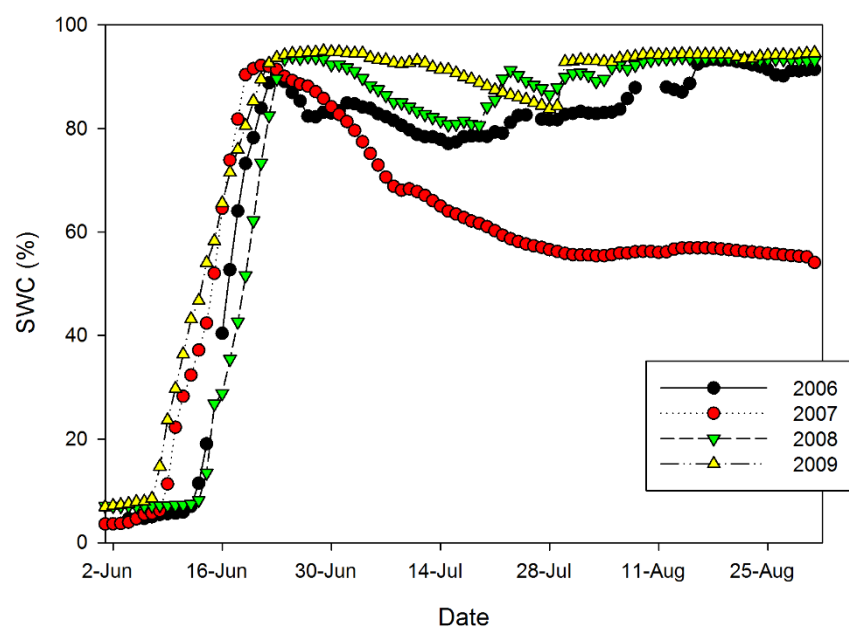


Fig. S2. Soil water content (SWC) in the 0-10 cm layer during each of the indicated years.

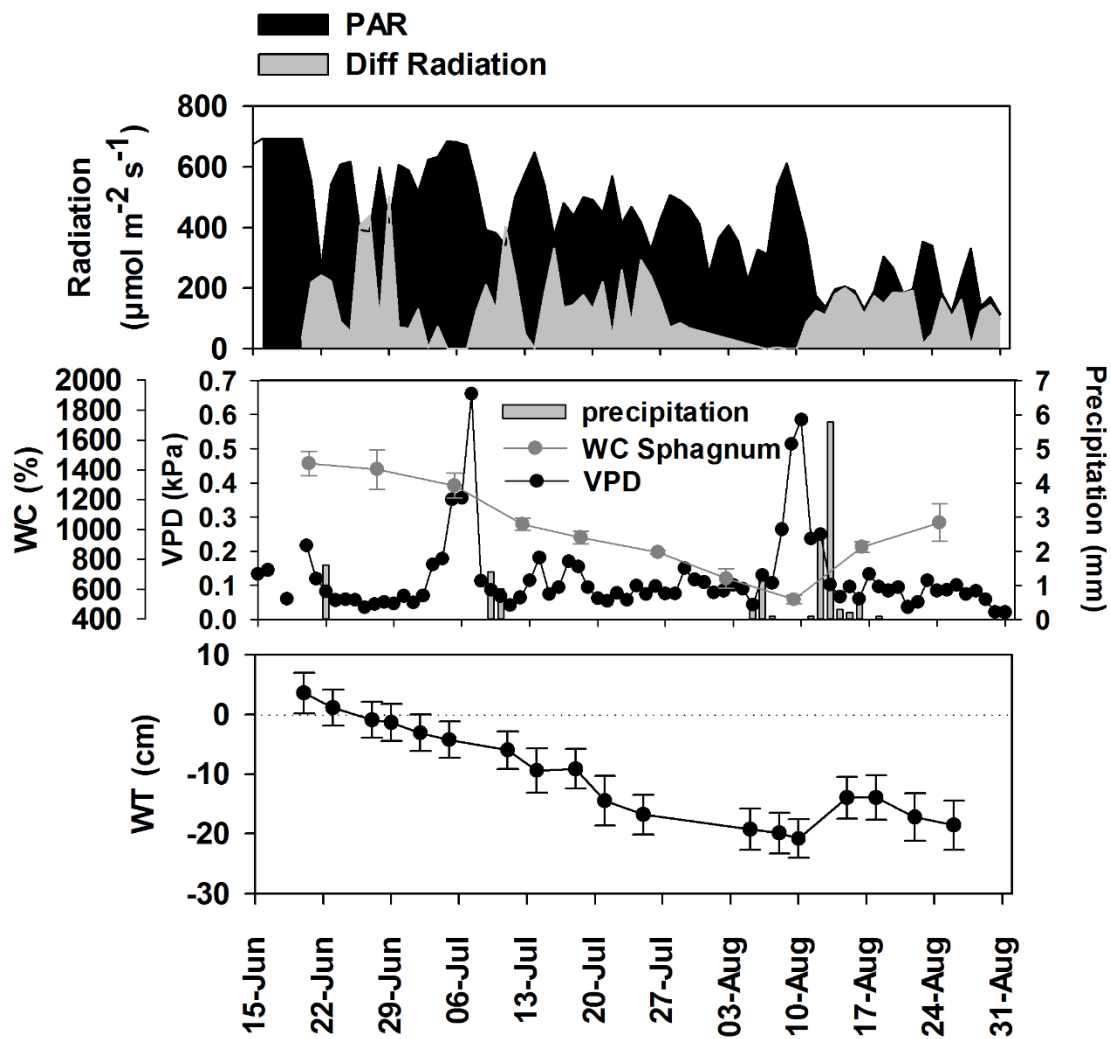


Fig.

Fig. S3. Daily average weather conditions (photosynthetically active radiation (PAR) and diffuse radiation and *Sphagnum* water content (WC), vapor pressure deficit (VPD), total daily precipitation and water table (WT)), during summer 2007 conditions at the study site. Error bars are standard error of the mean.

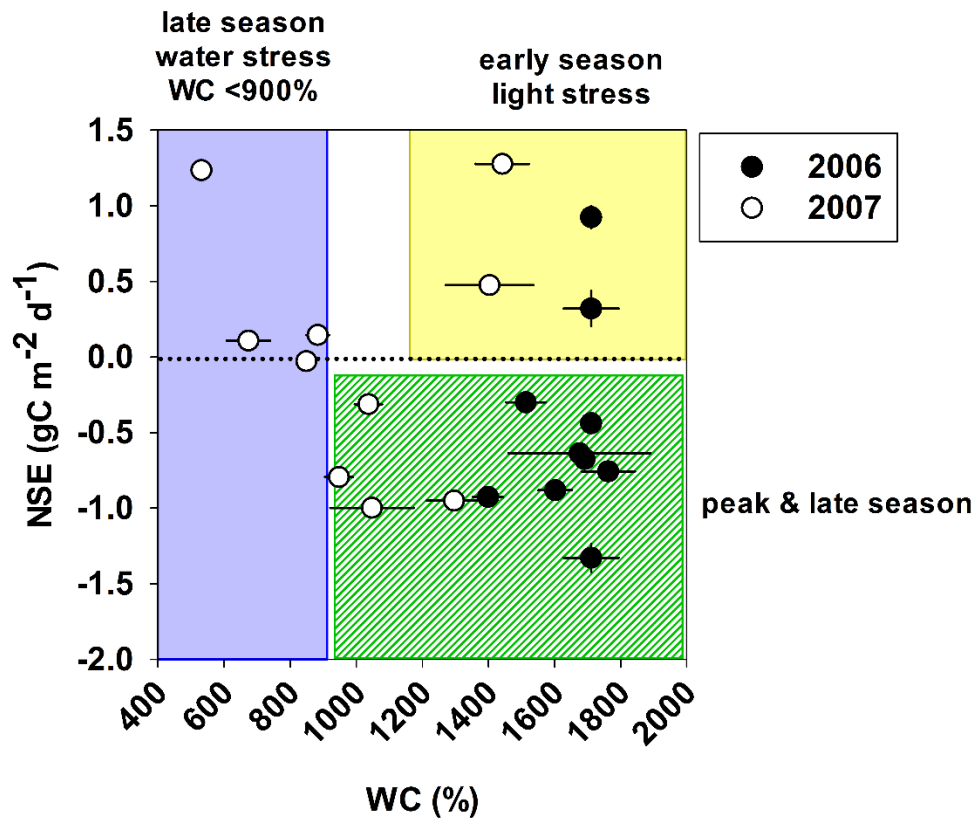


Fig. S4. Daytime (8:00-18:00) net *Sphagnum* exchange (NSE) vs water content in the *Sphagnum* layer (WC) during the 2006 and 2007 growing seasons. Negative NSE values represent C sink, while positive values represent C loss. Note photoinhibition early in the season in both years, and the water limitation (increase in NSE with decrease in WC below 900%) in summer 2007. Mosses were water saturated on 13 and 25 June 2006 (WC was not measured as water table was above or at the *Sphagnum* surface, and it was assumed to be equal to the maximum observed WC in summer 2006 for graphing purposes).



Fig. S5. Close-up photograph of the *Sphagnum* layer during mid-August 2006 and 2007.

Notice desiccation of the *Sphagnum* layer in August 2007.